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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kee Yean Ng

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AGILENT TECHNOLOGIES, INC.
INTELLECTUAL PROPERTY ADMINISTRATION, LEGAL DEPT.
P.O. BOX 7599
M/S DL429
LOVELAND, CO 80537-0599

EXAMINER

LEURIG, SHARLENE L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

68

Office Action Summary	Application No.	Applicant(s)	
	09/924,653	NG, KEE YEAN	
	Examiner	Art Unit	
	Sharlene Leurig	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>072103, 120803</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed March 22, 2004 has been entered and acknowledged by the examiner. Claims 1, 9 and 10 have been amended.

Information Disclosure Statement

2. The information disclosure statement filed July 21, 2003 cites the same references as the IDS filed December 8, 2003. It is unclear why the applicant has supplied the office with two information disclosure statements citing the same references. The examiner has considered all cited references supplied in both the IDS filed July 21, 2003 and the IDS of December 8, 2003.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 6-7, 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (3,555,335) (of record) in view of Komoto et al. (6,340,824) (of record).

Regarding claim 1, Johnson discloses a light-emitting device comprising a base substrate with a cavity to form a reflective cup (Figure 5, striped element), a projecting

Art Unit: 2879

platform (31) at the base of the cavity, and a light emitter (30) mounted on the projecting platform.

Though Johnson discloses a color filter incorporated into the casting resin of the device to achieve a desired optical effect, it lacks explicit disclosure of a coating material applied over the light emitter.

It is well known in the art to provide a coating of dye or phosphor over a light emitter to achieve a desired optical effect.

Regarding claim 1, Komoto teaches a coating having an adhesive material (Figures 104 and 106, element 2140(a)) and particles of another substance (FL), where the particles are evenly settled on and around the light emitter within the cavity, where evenly is interpreted as meaning equidistantly or with the same thickness throughout and coating is interpreted as meaning a thin layer covering something. The coating can be described as a viscous slurry since it comprises both a fluorescent material, such as a phosphor powder, and a fluid epoxy resin (column 47, line 46), that is deposited onto the light emitter (column 47, lines 60-67). The particles separate from the fluid resin because of a segregating speed difference (column 47, line 63) before the resin is cured, and therefore the particles are evenly settled before the coating is cured.

The examiner notes that the limitation of the viscous slurry being applied over the light emitter and the particles being evenly settled on and around the light emitter before the coating is cured is directed to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing

of a difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of Johnson with a coating layer containing adhesive and particles where the particles are coated evenly over the light emitter, as taught by Komoto, to modify the light emitted to achieve a uniform lighting effect.

Regarding claim 2, Johnson discloses a projecting platform formed as an integral part of the base substrate (see Figure 5, element 31 and surrounding striped element).

Regarding claim 6, Johnson discloses a reflective cup (Figure 5, striped element) providing reflection of light emitted by the light emitter (column 3, lines 39-44).

Regarding claim 7, Johnson discloses a cavity having a sloping wall (33, 34 or 35) of a frusto-conical form surrounding the projecting platform, where the sloping wall (column 3, lines 39-44) and the platform (column 3, lines 65-68) are coated with a reflective material. The sloping wall is interpreted as being frusto-conical because each section of the wall (34, 35) is formed as a shape of section of an inverted cone. Since the structure of Figure 5 is integral the platform must be considered part of the reflector.

Regarding claim 9, Johnson lacks disclosure of a coating covering the light emitter, as discussed above.

Komoto teaches a coating containing particles (FL) that settle to a lower position towards the periphery of the base of the cavity, thereby forming a coating containing the settled particle, the coating having of a constant thickness over a light emitter (Figure 106, element FL). Since the particles have a different settling speed than the

Art Unit: 2879

surrounding layers' components, the fluorescent layer FL settles to the bottom before the coating is cured (column 47, lines 60-67).

Therefore regarding claim 9, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter disposed on the platform of Johnson to have a coating formed uniformly over the emitter with the particles dispersed in the coating settling at a lower position toward the base before curing, as taught by Komoto, in order to achieve a uniform light effect. In such an arrangement the platform would allow the coating material to remain constant over the entire surface and sides of the emitter because it would provide the upward force which is provided by the cup in Komoto, which has a coating material of a constant thickness on the emitter but no platform.

Regarding claim 10, the particles are of fluorescent substance to absorb light of one wavelength and re-emit light of a different wavelength.

Regarding claim 11, the fluorescent substance is phosphor (column 15, line 46) and the adhesive material is epoxy (column 47, line 46).

Regarding claim 13, the light emitter is an LED (column 1, lines 3-4).

5. Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (3,555,335) (of record) in view of Komoto et al. (6,340,824) (of record), as applied to claims 1, 2, 6-7, 9-11 and 13 above, and further in view of Merg (5,019,746) (of record).

Johnson discloses a device with all the limitations discussed above, including a reflective cup, but lacks disclosure of a coating applied over the light-emitting device or of the reflective material coated onto the cup.

Komoto teaches a fluorescent and adhesive coating applied over the light-emitter, but also lacks disclosure of a reflective material.

Merg teaches a cup for supporting a light emitter having a silver coating, the silver increasing the reflectance of the cup (column 3, lines 34-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of Johnson with a fluorescent and adhesive coating layer formed evenly over the light emitter, as taught by Komoto, in order to achieve a uniform lighting effect, and to further modify the reflective cup of Johnson with a silver coating to provide a highly-reflective layer, as taught by Merg.

6. Claims 1, 3-6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-235787 (of record) in view of Komoto et al. (6,340,824) (of record).

Regarding claim 1, JP 62-235787 discloses a light-emitting device comprising a base substrate (Figure 1, element 24) with a cavity to form a reflective cup, a projecting platform (36) at the base of the cavity, and a light emitter (25) mounted on the projecting platform.

Regarding claim 1, JP 62-235787 lacks disclosure of a coating material applied over the light emitter.

It is well known in the art to provide a coating of dye or phosphor over a light emitter to achieve a desired optical effect.

Regarding claim 1, Komoto teaches a coating having an adhesive material (Figures 104 and 106, element 2140(a)) and particles of another substance (FL), where the particles are evenly settled on and around the light emitter within the cavity, where evenly is interpreted as meaning equidistantly or with the same thickness throughout and coating is interpreted as meaning a thin layer covering something. The coating can be described as a viscous slurry since it comprises both a fluorescent material, such as a phosphor powder, and a fluid epoxy resin (column 47, line 46), that is deposited onto the light emitter (column 47, lines 60-67). The particles separate from the fluid resin because of a segregating speed difference (column 47, line 63) before the resin is cured, and therefore the particles are evenly settled before the coating is cured.

The examiner notes that the limitation of the viscous slurry being applied over the light emitter and the particles being evenly settled on and around the light emitter before the coating is cured is directed to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of a difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of Johnson with a coating layer containing

Art Unit: 2879

adhesive and particles where the particles are coated evenly over the light emitter, as taught by Komoto, to modify the light emitted to achieve a uniform lighting effect.

Regarding claim 3, the projecting platform disclosed in JP 62-235787 is a discrete component, attachable to the base substrate (Abstract Constitution lines 1-5).

Regarding claim 4, the projecting platform and the base substrate disclosed in JP 62-235787 are made of different materials (Abstract Constitution lines 1-5).

Regarding claim 5, the base substrate disclosed in JP 62-235787 comprises a metal (Abstract Constitution line 1) and the projecting platform comprises a material able to efficiently dissipate heat generated by the light emitter (Abstract Purpose lines 3-6).

Regarding claim 6, JP 62-235787 discloses a reflective cup (34) to provide reflection of light emitted by the light emitter (Abstract Constitution lines 11-13).

Regarding claim 9, JP 62-235787 lacks disclosure of a coating covering the light emitter, as discussed above.

Komoto teaches a coating containing particles (FL) that settle to a lower position towards the periphery of the base of the cavity, thereby forming a coating containing the settled particle, the coating having of a constant thickness over a light emitter (Figure 106, element FL). Since the particles have a different settling speed than the surrounding layers' components, the fluorescent layer FL settles to the bottom before the coating is cured (column 47, lines 60-67).

Therefore regarding claim 9, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter disposed on the platform of

Art Unit: 2879

Johnson to have a coating formed uniformly over the emitter with the particles dispersed in the coating settling at a lower position toward the base before curing, as taught by Komoto, in order to achieve a uniform light effect. In such an arrangement the platform would allow the coating material to remain constant over the entire surface and sides of the emitter because it would provide the upward force which is provided by the cup in Komoto, which has a coating material of a constant thickness on the emitter but no platform.

Regarding claim 10, the particles are of fluorescent substance to absorb light of one wavelength and re-emit light of a different wavelength.

Regarding claim 11, the fluorescent substance is phosphor (column 15, line 46) and the adhesive material is epoxy (column 47, line 46).

Regarding claim 12, a lens (32) disclosed in JP 62-235787 to focus the emitted light is formed above the light emitter. The coating material as taught by Komoto is formed directly over the light emitter and therefore the lens disclosed in JP 62-235787 would be positioned over the coating material.

Regarding claim 13, the light emitter disclosed in JP 62-235787 is an LED (Abstract Constitution line 12).

7. Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-235787 (of record) in view of Komoto et al. (6,340,824) (of record), as applied to claims 1, 3-6 and 9-13 above, and further in view of Merg (5,019,746) (of record).

JP 62-235787 discloses a device with all the limitations discussed above, including a reflective cup (Abstract Constitution lines 11-13), but lacks disclosure of a coating applied over the light-emitting device or of the reflective material coated onto the cup.

Komoto teaches a fluorescent and adhesive coating applied over the light-emitter, but also lacks disclosure of a reflective material.

Merg teaches a cup for supporting a light emitter having a silver coating, the silver increasing the reflectance of the cup (column 3, lines 34-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of JP 62-235787 with a fluorescent and adhesive coating layer formed evenly over the light emitter, as taught by Komoto, in order to achieve a uniform lighting effect, and to further modify the reflective cup of JP 62-235787 with a silver coating to provide a highly-reflective layer, as taught by Merg.

Response to Arguments

8. Applicant's arguments filed on March 22, 2004 have been fully considered but they are not persuasive.

The applicant has argued that the claims as amended are allowable as the prior art of record fails to disclose, teach or suggest a viscous slurry of adhesive and particles applied over a light emitter in a cavity and where the particles of the coating evenly settle on and around the light emitter before the coating is cured.

The examiner agrees with the applicant's argument that neither Johnson nor JP 62-235787 disclose a viscous slurry of adhesive and particles applied over a light emitter in a cavity.

The applicant argues that the Komoto reference discloses planar particles that are sintered, as in Figure 96B (page 7). The examiner disagrees with this assertion and directs the applicant to Figures 104 and 106 and the corresponding columns for disclosure of a viscous slurry of adhesive and particles applied over a light emitter in a cavity and where the particles of the coating evenly settle on and around the light emitter before the coating is cured.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2879

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sll

A handwritten signature in black ink, appearing to be 'sll' with a stylized flourish.